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Assignment 4

Problem 1:

Counter.java

```
import java.util.Scanner;

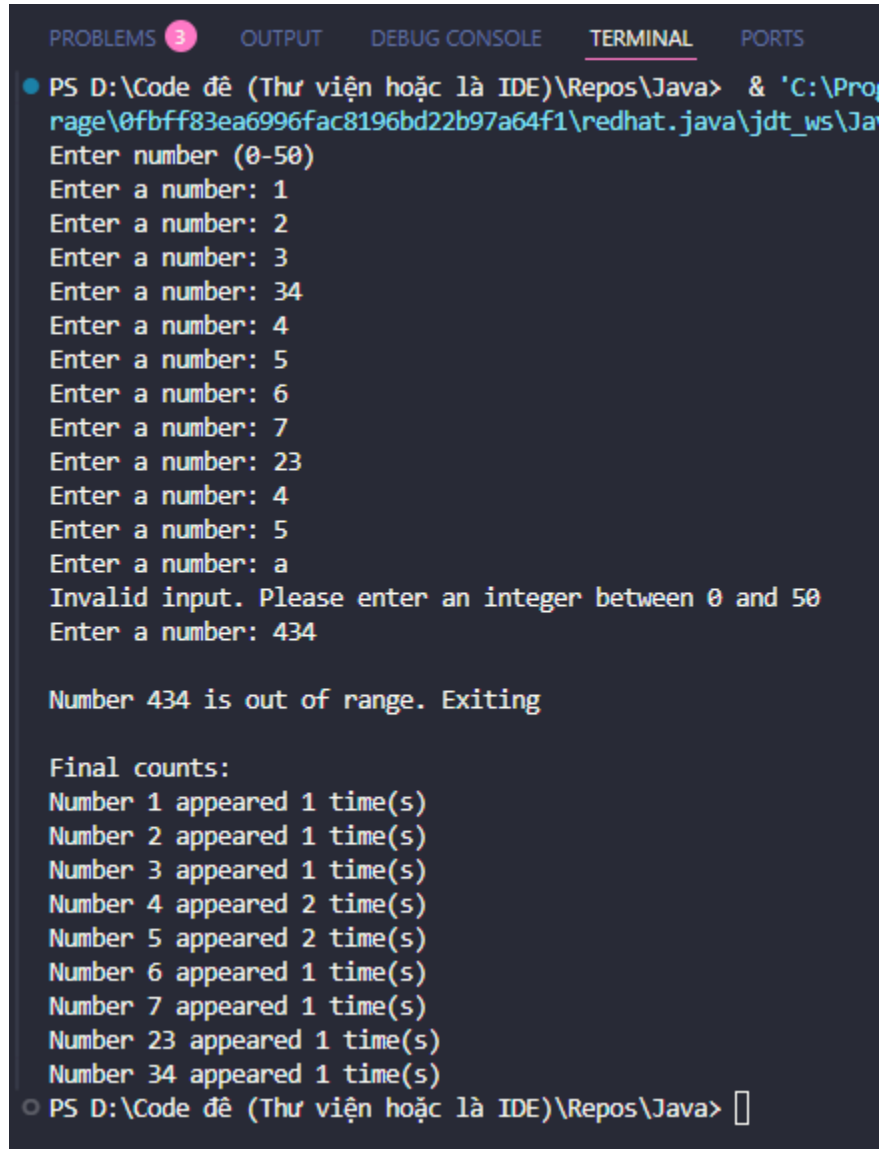
public class Counter {
    public static void main(String[] args) {
        int[] counts = new int[51];
        Scanner s = new Scanner(System.in);
        System.out.println("Enter number (0-50)");
        int inputNumber;
        while (true) {
            System.out.print("Enter a number: ");
            if (s.hasNextInt()) {
                inputNumber = s.nextInt();
                if (inputNumber < 0 || inputNumber > 50) {
                    System.out.println("\nNumber " + inputNumber + " is
out of range. Exiting");
                    break;
                }
                counts[inputNumber]++;
            } else {
                System.out.println("Invalid input. Please enter an
integer between 0 and 50");
                s.next();
            }
        }
        System.out.println("\nFinal counts:");
        boolean hasOutput = false;
        for (int i = 0; i < counts.length; i++) {
            if (counts[i] > 0) {
                System.out.println("Number " + i + " appeared " +
counts[i] + " time(s)");
                hasOutput = true;
            }
        }
    }
}
```

```

        if (!hasOutput) {
            System.out.println("No numbers were entered");
        }
        s.close();
    }
}

```

Result:



```

PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL PORTS
● PS D:\Code đề (Thư viện hoặc là IDE)\Repos\Java> & 'C:\Progr
rage\0fbff83ea6996fac8196bd22b97a64f1\redhat.java\jdt_ws\Ja
Enter number (0-50)
Enter a number: 1
Enter a number: 2
Enter a number: 3
Enter a number: 34
Enter a number: 4
Enter a number: 5
Enter a number: 6
Enter a number: 7
Enter a number: 23
Enter a number: 4
Enter a number: 5
Enter a number: a
Invalid input. Please enter an integer between 0 and 50
Enter a number: 434

Number 434 is out of range. Exiting

Final counts:
Number 1 appeared 1 time(s)
Number 2 appeared 1 time(s)
Number 3 appeared 1 time(s)
Number 4 appeared 2 time(s)
Number 5 appeared 2 time(s)
Number 6 appeared 1 time(s)
Number 7 appeared 1 time(s)
Number 23 appeared 1 time(s)
Number 34 appeared 1 time(s)
○ PS D:\Code đề (Thư viện hoặc là IDE)\Repos\Java> 

```

Problem 2:

Pet.java

```
public class Pet {
    private String name;
    private String ownerName;
    private String color;

    protected String sex; //MALE, FEMALE, SPAYED and NEUTERED
    public static final int MALE = 0;
    public static final int FEMALE = 1;
    public static final int SPAYED = 2;
    public static final int NEUTERED = 3;

    Pet() {}
    Pet(String name, String ownerName, String color) {
        this.name = name;
        this.ownerName = ownerName;
        this.color = color;
    }

    public String getPetName() {
        return name;
    }

    public String getOwnerName() {
        return ownerName;
    }

    public String getColor() {
        return color;
    }

    public void setSex(int sexid) {
        switch (sexid) {
            case MALE:
                this.sex = "male";
                break;
            case FEMALE:
                this.sex = "female";
                break;
            case SPAYED:
                this.sex = "spayed";
                break;
            case NEUTERED:
```

```

        this.sex = "neutered";
        break;
    default:
        this.sex = "unknown";
    }
}

public String getSex() {
    return this.sex;
}

@Override
public String toString() {
    return String.format("%s owned by %s\nColor: %s\nSex: %s",
        this.name, this.ownerName, this.color,
this.getSex());
}
}

```

Boardable.java

```

public interface Boardable {
    void setBoardStart(int month, int day, int year);
    void setBoardEnd(int month, int day, int year);
    boolean boarding(int month, int day, int year);
}

```

Cat.java

```

import java.util.GregorianCalendar;

public class Cat extends Pet implements Boardable {
    private String hairLength;
    private GregorianCalendar boardStart;
    private GregorianCalendar boardEnd;
    public Cat(String name, String ownerName, String color, String
hairLength) {
        super(name, ownerName, color);
        this.hairLength = hairLength;
    }

    public String getHairLength() {
        return hairLength;
    }
}

```

```

    }

    @Override
    public String toString() {
        String petDetails = super.toString();
        petDetails = petDetails.replace(String.format("%s owned by %s",
getPetName(), getOwnerName()),
                                getPetName() + " owned by " +
getOwnerName());
        return "CAT:\n" + petDetails + "\nHair: " + this.hairLength;
    }

    @Override
    public void setBoardStart(int month, int day, int year) {
        this.boardStart = new GregorianCalendar(year, month - 1, day);
    }

    @Override
    public void setBoardEnd(int month, int day, int year) {
        this.boardEnd = new GregorianCalendar(year, month - 1, day);
    }

    @Override
    public boolean boarding(int month, int day, int year) {
        if (boardStart == null || boardEnd == null) {
            return false;
        }
        GregorianCalendar checkDate = new GregorianCalendar(year, month -
1, day);
        boolean afterOrEqualStart = checkDate.compareTo(boardStart) >= 0;
        boolean beforeOrEqualEnd = checkDate.compareTo(boardEnd) <= 0;
        return afterOrEqualStart && beforeOrEqualEnd;
    }
}

```

Bird.java

```

public class Bird extends Pet {
    private boolean feathersClipped;
    public Bird(String name, String ownerName, String color) {
        super(name, ownerName, color);
        this.feathersClipped = false;
    }

    public boolean clipped() {

```

```

        return feathersClipped;
    }

    public void setClipped() {
        this.feathersClipped = true;
    }

    @Override
    public String toString() {
        String petDetails = super.toString();
        petDetails = petDetails.replace(String.format("%s owned by %s",
getPetName(), getOwnerName()),
                                getPetName() + " owned by " +
getOwnerName());
        String clippedStatus = this.feathersClipped ? "Clipped: Yes" :
"Clipped: No";
        return "BIRD:\n" + petDetails + "\n" + clippedStatus;
    }
}

```

PetDriver.java

```

public class PetDriver {
    public static void main(String[] args) {
        System.out.println("--- Check Cat class & Interface Boardable
---");

        Cat tom = new Cat("Tom", "Bob", "black", "short");
        tom.setSex(Pet.SPAYED);

        System.out.println("Cat Information (toString):");
        System.out.println(tom.toString());
        System.out.println("Hair Length: " + tom.getHairLength());
        tom.setBoardStart(12, 10, 2025);
        tom.setBoardEnd(12, 20, 2025);
        System.out.println("\nCheck Boarding:");
        System.out.println("Is 15/12/2025 boarding? " + tom.boarding(12,
15, 2025));
        System.out.println("Is 10/12/2025 boarding? " + tom.boarding(12,
10, 2025));
        System.out.println("Is 25/12/2025 boarding? " + tom.boarding(12,
25, 2025));

        System.out.println("\n--- Check Bird Class ---");
        Bird poly = new Bird("Poly", "Steve", "green");
        poly.setSex(Pet.FEMALE);
    }
}

```

```
        System.out.println("Bird Information (toString):");
        System.out.println(poly.toString());
        System.out.println("Are feathers initially clipped? " +
poly.clipped());
        poly.setClipped();
        System.out.println("After clipping: " + poly.clipped());
        System.out.println("\nBird Information after setClipped():");
        System.out.println(poly.toString());
    }
}
```

Result:

PROBLEMS 5

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

```
PS D:\Code đề (Thư viện hoặc là IDE)\Repos\Java> & 'C:\Program Files\Java\jdk-11.0.10\bin\java.exe' -cp 'D:\Code đề (Thư viện hoặc là IDE)\Repos\Java\src\redhat.java' -Djava.class.path='D:\Code đề (Thư viện hoặc là IDE)\Repos\Java\src\redhat.java' -Djava.library.path='D:\Code đề (Thư viện hoặc là IDE)\Repos\Java\src\redhat.java' redhat.java
```

```
--- Check Cat class & Interface Boardable ---
```

```
Cat Information (toString):
```

```
CAT:
```

```
Tom owned by Bob
```

```
Color: black
```

```
Sex: spayed
```

```
Hair: short
```

```
Hair Length: short
```

```
Check Boarding:
```

```
Is 15/12/2025 boarding? true
```

```
Is 10/12/2025 boarding? true
```

```
Is 25/12/2025 boarding? false
```

```
--- Check Bird Class ---
```

```
Bird Information (toString):
```

```
BIRD:
```

```
Poly owned by Steve
```

```
Color: green
```

```
Sex: female
```

```
Clipped: No
```

```
Are feathers initially clipped? false
```

```
After clipping: true
```

```
Bird Information after setClipped():
```

```
BIRD:
```

```
Poly owned by Steve
```

```
Color: green
```

```
Sex: female
```

```
Clipped: Yes
```

```
PS D:\Code đề (Thư viện hoặc là IDE)\Repos\Java> 
```